

Remarks

Summary: Arguments are made below for the patentability of the claims, including amended claims 1 – 8, and 12.

Response to Paragraph 2 of the Office Action: Initially, referring to page 2 of the Action, the rejection in paragraph 2, lines 1 and 2 only references Chiou. In view of the references in Paragraph 2 to Section 103, and in view of the references in Paragraph 2 to Monroe on pages 6 and 7, including the combination rejection stated at the bottom of page 6 onto page 7, the rejection of paragraph 2 is understood as being based on Chiou in view of Monroe. In view of the above claim amendments that are discussed below, consideration of the amended claims as being patentable over Chiou in view of Monroe is respectfully requested.

The Rejection

The rejection admits (page 6, lines 1-3) that Chiou does not specifically disclose a thermal energy detector comprising a plurality of separate detectors spaced along a diameter of the wafer “as set forth in the claims”. In an attempt to provide the missing thermal energy detector comprising a plurality of separate detectors spaced along a diameter of the wafer as set forth in the claims, the rejection refers to Monroe, and specifically to the Monroe temperature detectors 46. The rejection asserts that those “temperature detectors 46 are spaced along the diameter of 5 in order to measure each separate spaced location of the thermal energy unit 42, 43.”

Claims 1 and 3

It is respectfully submitted that Chiou combined with Monroe does not provide every aspect of amended claim 1 and claim 3 (based on claim 1). In detail, the amended claim 1 recitation is:

a thermal energy transfer unit configured with a plurality of sections positioned at separate spaced locations defined by one given diameter of the wafer,...

a thermal energy detector comprising a plurality of separate detectors spaced along the one given a diameter of the wafer, the separate detectors being configured so that one of the separate detectors corresponds to each separate spaced location of the thermal energy transfer unit for detecting the temperatures at each separate spaced location.

Given the Lack of detectors in Chiou, the teaching of the claimed detectors must be found in Monroe. Monroe provides six detectors, each identified as 46. Reference is made to the claim limitation “a plurality of sections positioned at separate spaced locations **defined by one given diameter of the wafer**,” and to the claim limitation “a thermal energy detector comprising a plurality of separate detectors spaced along **the one given** diameter of the wafer, **the separate detectors being configured** so that **one** of the separate detectors corresponds to **each separate spaced location** of the thermal energy transfer unit”. In this context, the Monroe detectors 46 may be related to three separate “given” diameters (of the wafer) that may be extended through the coils 42 and 43 as shown in Attachment I, which is a marked-up copy of Monroe Fig. 3. One such diameter H would be horizontal, one such diameter L would extend top (left) to bottom (right), and one such diameter R would extend top (right) to bottom (left). However, only one of these diameters H, L and R can conform to the claimed “one given diameter”. Significantly, as to any one of these diameters H, L and R, the detectors 46 of Monroe do not comprise a plurality of separate detectors spaced along **the one given** diameter of the wafer with **the separate detectors being configured** so that **one** of the separate detectors corresponds to **each separate spaced location** of the thermal energy transfer unit. In detail, in Monroe there is no detector 46 corresponding to the spaced locations of the coil 43 that are defined by the diameter H. That is, the diameter H defines two spaced locations (see 43-1 and 43-2 on Attachment I) of the thermal energy transfer unit 43, but there is no detector 46 that corresponds to either of those locations 43-1 and 43-2.

Thus, with respect to Monroe's detectors 46 and the diameter H, those separate detectors are not, as claimed, configured so that one of the separate detectors 46 corresponds to each separate spaced location of the thermal energy transfer unit 42, 43. Further, in Monroe there is no detector 46 corresponding to the spaced locations of the coil 42 that are defined by either of the diameters L and R. That is, the diameters L and R define two respective spaced locations (as to L, see 42-1 and 42-4 on Attachment I, as to R, see 42-2 and 42-3) of the thermal energy transfer unit 42, but there is no detector 46 that corresponds, as claimed, to any of those locations 42-1, 42-2, 42-3, or 42-4. Again, with respect to Monroe's detectors 46 and the diameters L and R, those separate detectors 46 are not, as claimed, configured so that one of the separate detectors 46 corresponds to each separate spaced location of the thermal energy transfer unit 42, 43.

In view of the remarks above, it is respectfully submitted that the combined references to Chiou and Monroe do not meet the limitations of amended claims 1 and 3, such that allowance of these claims is believed to be proper and is respectfully requested.

#### Claim 2

As to amended claim 2, based on amended claim 1, the claim text has been amended for clarification, and now defines:

the controller being connected to respective ones of the separate detectors corresponding to **each** of the separate locations for controlling a transfer of thermal energy relative to **each** of the separate spaced locations of the thermal energy transfer unit

In the horizontal diameter H example of Attachment I, as described above, no detector 46 is, as claimed, spaced along that horizontal diameter H corresponding to either of the two spaced locations 43-1 or 43-2 of the outer coil 43. Again as described above, it is respectfully submitted that a similar situation results with respect to the other two exemplary

diameters L and R, in that the detectors 46 adjacent to the inner coil 42 are not spaced along the other two diameters L and R, such that in every case of the three diameters H, L, and R of Monroe, there is no controller connected to respective ones of the separate detectors 46 corresponding to **each of** the separate locations (of the thermal energy transfer unit) for controlling a transfer of thermal energy relative to **each** of the separate spaced locations of the thermal energy transfer unit. As a result, the combined teachings of Chiou and Monroe do not meet the text of amended claim 2, such that allowance of amended claim 2 is believed to be proper and is respectfully requested.

#### Claims 4 and 5

As to claims 4 and 5, the claim text has been amended to clarify the diameter along which the plurality of separate sections of the thermal energy transfer unit are spaced. Those plurality of sections are now said to be “spaced along and intersecting a common diameter of the wafer”.

In contrast, the rejection statement as to detectors is that Monroe provides “a plurality of detectors spaced along a diameter of the wafer...”. It is respectfully submitted that such assertion does not apply to the now-claimed:

having a plurality of separate thermal energy transfer sections, **each of the separate sections being spaced along and intersecting a common** diameter of the wafer; and  
a thermal energy detector system adjacent to the wafer for separately detecting a temperature of **each location** on the wafer at which the **common** diameter intersects the separate sections of the thermal energy transfer unit.

Referring again to Attachment I and the remarks above relating to Attachment I, it is clear Monroe does not teach a detector system for separately detecting a temperature of each location on the wafer at which a common diameter intersects the separate sections of the thermal energy transfer unit. In detail, in the horizontal diameter H example of Attachment I,

as described above, no detector 46 separately detects a temperature at either of the two spaced intersection locations 43-1 or 43-2 of the outer coil 43. Again as described above, it is respectfully submitted that a similar situation results with respect to the other two exemplary diameters L and R, in that the two detectors 46 that are adjacent to the inner coil 42 are not located so as to separately detect a temperature at any location at which the respective common diameter L or R intersects the inner coil 42. Thus, in every case of the three diameters H, L, and R of Monroe, there is no detector system that, as claimed, separately detects a temperature of each location on the wafer at which a common diameter intersects the separate sections of the thermal energy transfer unit. There is no detection by the common diameter L of temperature at locations 42-1 or 42-4, for example. There is no detection by the common diameter R of temperature at locations 42-2 or 42-3, for example. As a result, the combined teachings of Chiou and Monroe do not meet the text of amended claims 4 or 5, such that allowance of amended claims 4 and 5 is believed to be proper and is respectfully requested.

#### Claims 6-12

As to claims 6 - 12, the claim text has been amended to clarify the given diameter as relates to (a) sections of the thermal energy transfer unit that are intersected by the given diameter; (b) the thermal gradient across along that given diameter, and (c) a detector located adjacent to each intersection of that given diameter and one of the sections the thermal energy transfer unit.

In contrast, as noted above, the rejection statement as to detectors is that Monroe provides “a plurality of detectors spaced along a diameter of the wafer...”. It is respectfully submitted that such assertion does not apply to the now-claimed:

a thermal energy detector unit adjacent to the wafer mounting surface, the thermal energy detector comprising separate detectors **along the given diameter and adjacent to each of the intersections of the given diameter and the separate sections** of the thermal energy transfer unit for detecting the temperatures of the thermal gradient established by the separate sections;

where the given diameter is related to the thermal energy transfer unit configured with separate sections, and where **each** of those sections is **intersected** by the **given diameter** and the intersected sections collectively establish a thermal gradient across the given diameter of the wafer. In more detail, referring again to Attachment I and the remarks above relating to Attachment I, it is clear that Monroe does not teach a detector system comprising separate detectors **along the given diameter and adjacent to each of the intersections of the given diameter and the separate sections** of the thermal energy transfer unit for detecting the temperatures of the thermal gradient established by the separate sections. For example, in the horizontal diameter H example of Attachment I, as described above, no detector 46 is adjacent to either of the two spaced intersection locations 43-1 or 43-2 of the outer coil 43. Again as described above, it is respectfully submitted that a similar situation results with respect to the other two exemplary diameters L and R, in that the two detectors 46 that are adjacent to the inner coil 42 are not located adjacent to the intersection of the section of the outer coil 43 and that given diameter L or R. Thus, in every case of the three diameters H, L, and R of Monroe, there is no detector unit that, as claimed, comprises separate detectors along the given diameter and adjacent to **each** of the intersections of the **given diameter** and the separate sections of the thermal energy transfer unit for detecting the temperatures of the thermal gradient established by the separate sections. As a result, the combined teachings of Chiou and Monroe do not meet the text of amended claims 6 - 12, such that allowance of amended claims 6 - 12 is believed to be proper and is respectfully requested.

Claims 1 - 12

Additionally, as to all of the amended claims, it is respectfully submitted that it is not proper to combine Monroe with Chiou. More specifically, it is respectfully submitted that Monroe teaches away from the claimed:

claims 1-3:

at separate spaced locations **defined by one given diameter of the wafer**, each separate section being effective to transfer a separate amount of energy relative to one of the respective separate spaced locations; and

a thermal energy detector comprising a plurality of separate detectors spaced along the one given diameter of the wafer, the separate detectors being configured so that **one of the separate detectors corresponds to each separate spaced location** of the thermal energy transfer unit

claims 4-5:

each of the separate sections being spaced along and **intersecting a common diameter** of the wafer; and

a thermal energy detector system adjacent to the wafer for separately detecting a temperature of **each location on the wafer at which the common diameter intersects the separate sections** of the thermal energy transfer unit.

claims 6-12:

**each** of the sections being **intersected by the given diameter**, and

a thermal energy detector unit adjacent to the wafer mounting surface, the thermal energy detector comprising separate detectors **along the given diameter and adjacent to each of the intersections of the given diameter and the separate sections** of the thermal energy transfer unit for detecting the temperatures of the thermal gradient established by the separate sections;

This teaching away is based on Monroe showing that one should use a vertical chord

(and not a diameter) as a line of reference. Two such chords could be drawn in Fig. 3 of

Monroe. As taught by these chords, and as relates to claims 1-3, **each** of the sections of the

thermal energy transfer unit (coils 42/43) is not at a separate spaced location **defined by one given chord of the wafer**. In detail, Monroe teaches no such section of the inner coil 42 defined by either of the chords that extend through the detectors 46, because neither chord intersects the inner coil 42. Further, while Monroe Fig. 3 teaches the separate detectors 46 spaced along each of the two chords, as to such chords the separate detectors 46 are not (as claimed) configured so that **one** of the separate **detectors** corresponds to **each separate spaced location** of the thermal energy transfer unit. Again, this is because neither chord intersects the inner coil 42.

As to claims 4-5, this teaching away is also based on Monroe showing that one should use a vertical chord (and not a diameter) as a line of reference, and relates to the claim text

... **each** of the sections [of the thermal energy transfer unit] (corresponding to coils 42/43) ...**intersecting a common diameter** (chord),

where the (...) relate to Monroe elements. However, while Monroe Fig. 3 shows the separate detectors 46 spaced along either chord, in the Monroe disclosure of such chords, **each of** the separate sections of the thermal energy transfer unit (coils 42/43) is **not intersected** by the given chord. As a result of the chord not intersecting each such section (i.e., not intersecting the coil 42), even as to such teaching away to chords, Monroe **does not show** a detector system capable of detecting a temperature at **each intersection location of the common chord and each of the coils 42 and 43** of the thermal energy transfer unit.

As to claims 6-12, this teaching away is also based on Monroe showing that one should use a vertical chord (and not a diameter) as a line of reference. As noted above, two such chords could be drawn in Fig. 3 of Monroe. Even with such teaching away from the diameter to the chords, as to claims 6-12, **each** of the sections of the thermal energy transfer unit is **not intersected** by the **given diameter** (i.e., chord of Monroe). Rather, in Monroe

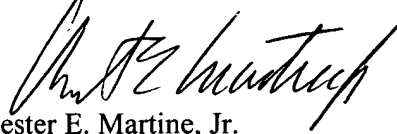


each such chord will only intersect the outer coil 43, and not the inner coil 42. Further, even with such teaching away to the chords, because the chords do not intersect **each such section**, the Monroe thermal energy detectors that are along a given chord **cannot** be adjacent to the intersection of the chords and the separate section (coil 42) of the thermal energy transfer unit (coils 42/43).

It is respectfully submitted that when a reference teaches away from the claimed subject matter, under Section 103 the combination of references is not proper. Accordingly, for this further reason, allowance of amended claims 1-12 is believed to be in order, and is respectfully requested.

In view of these remarks, it is respectfully submitted that the pending claims are patentable over the cited references, and allowance of the pending claims is respectfully requested. Should the Examiner have any questions concerning this matter, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,  
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